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HAND DELIVERED VIA FACSIMILE

Mr. David S. Guzy
Chief, Rules and Procedures Staff
U.S. Department of the Interior
Minerals Management Service
Royalty Management Program
Rules and Publications Staff, MS3101
Building 85, Denver Federal Center, Room A-212
Denver, CO 80225-0165

Re: *Supplementary Proposed Rule*

Dear Mr. Guzy:

Texaco Inc., on behalf of itself and its affiliates, Texaco Exploration and Production Inc. and Texaco Trading and Transportation Inc., appreciates the opportunity to submit these comments to the July 3, 1997 Supplementary Proposed Rule for Establishing Oil Value for Royalty Due on Federal Leases and on Sale of Federal Royalty Oil. The Notice indicates that the new proposal was intended only to address concerns of certain non-integrated producers. And although the Notice to the Supplementary proposal contains a brief section describing "Public Comments," *none* of Texaco's comments to the original Proposed Rule are mentioned or in any way addressed by the proposal. In fact, the Notice to the Supplementary proposal ignores all but a few of the comments filed by both integrated and non-integrated producers. As Texaco explained in its original comments, integrated producers would be unfairly discriminated against if the proposed rule were implemented. MMS should move to eliminate that discrimination rather than enhance it, as it has under the Supplementary Proposed Rule. Texaco again urges MMS to consider and act upon Texaco's prior written comments and expert reports submitted on May 28, 1997.

Among the revisions to the original proposal is an exemption that would generally be available only to certain producers for certain buy/sell and exchange transactions. Generally, the exemption would be available to companies who do not maintain an "overall balance" in their trades. According to MMS, an "overall balance" is achieved when the parties "agree to sell roughly equivalent volumes to one another."

MMS presumes that prices in buy/sell and exchange transactions are "below market for the field or area" when the trading parties maintain an "overall balance." This presumption of below market pricing applies, according to the Notice, even though the prices "appear to be arm's-length." The presumption that competing companies use below market prices in their trades implicates all of industry. Such a broad presumption is incorrect and is not supported by facts.

MMS also seeks comments on limiting certain information collected on proposed Form MMS-4415. MMS has proposed using this form to adjust its proposed index prices of crude oil for quality and location at various "aggregation points." As set forth in Texaco's prior comments, the information in Form 4415 would generally be useless because the location and quality differentials would usually be obsolete by the time the forms were processed. Limiting the information collected to exchanges between two aggregation points would reduce the burden of collecting other irrelevant information. However, the burden of compliance would remain huge because the information sought is not readily available and the need described in Texaco's earlier comments to change its computer systems would continue. The Office of Management and Budget was similarly concerned that the burden imposed on industry by Form 4415 far outweighed the value of information that would be collected. The proposed changes do not resolve this problem.

MMS also seeks comments on "how lessees would allocate to Federal leases differentials from aggregation points to market centers when non-federal production is commingled with federal production at aggregation points." MMS implicitly recognizes that the crude oil product at an aggregation point is not the same product produced at a federal lease. Any allocation back to the lease would necessarily involve allocation not just of volumes but of quality and other variations, including gravity, sulfur, metals content and other impurities content. Therein lies one of the core problems of any net-back valuation methodology for crude oil. A net-back formula that does not properly address these issues is inefficient and will not yield market value at the lease.

Finally, MMS seeks comments on alternatives for valuing production not sold under arm's-length contracts. Texaco proposed two such alternatives, as did many integrated and non-integrated producers, which are not addressed in the Supplementary proposal. Texaco noted that federal lease royalties must be based on crude oil values at the lease. We recommended, first, that MMS expand its royalty-in-kind program in fields where MMS might have any concern that sales prices at the lease do not reflect market value. Alternatively, we recommended a methodology to establish crude oil value in the field by utilizing transactions involving a representative amount of lessee crude oil production sold arm's-length to third parties at or near the lease, with such values used in determining royalty for comparable production. We

reiterate our offer to assist MMS in developing and implementing either such recommended programs. Again, Texaco's proposals were similar to alternative proposals that were widely supported in industry comments by integrated and non-integrated producers, and their trade associations.

In addition to the above issues raised by the new Supplementary Proposed Rule, we would like to address briefly comments to the original proposed rule submitted by the City Attorney of Long Beach on behalf of Long Beach and the State of California, along with separate comments by the California State Controller's Office. Not surprisingly, California would like its share of federal royalties to be based on prices in market centers far away from the lease, where prices are naturally higher than prices at the lease as a result of additional risk, transportation and other costs. However, we note that the City Attorney's and Controller's comments supporting the proposed formula using spot prices of Alaska North Slope oil in Los Angeles and San Francisco contain numerous admissions of fact that, properly analyzed, prove the ANS formula to be inappropriate and unworkable. In fact, these comments support the comments previously offered by Texaco.

For example, both the City Attorney and Controller acknowledge that ANS crude is more valuable than California crudes because, "[s]ince the early 1980's, all California refiners have viewed ANS as the one crude that was available in adequate supply if needed to supply their refineries." (City Attorney Comments at p. 15; *see also* Controller Comments at p. 6, ("[S]ince the early 1980's refineries in California have viewed ANS as the crude available in adequate supply to meet their needs.").) As set forth in expert reports of both Dr. Klein and Mr. Van Vactor submitted with Texaco's original comments, and as further explained in a supplemental report by Mr. Van Vactor attached hereto, this economic advantage in the availability of ANS crude contributes to a higher price. For this reason alone, ANS is not an appropriate benchmark to value California crudes because it would exaggerate the value of California crudes.

The City Attorney next compares ANS prices ("adjusted for location") with "similar" California crudes "such as Ventura, Signal Hill and Buena Vista." (City Attorney Comments at p. 15-16 and graph B.) In fact, however, several economic factors in addition to location make these crudes dissimilar. Such factors include the number of heavy metals and other impurities that cause corrosion and other refining difficulties, the steady availability of the crude to refiners, and the need to commingle certain crudes with other crudes to reduce the cost of transportation. (Supplemental Report of Mr. Van Vactor at p. 3-4.)

The City Attorney admits, also, that spot prices in California are "thinly traded." (City Attorney Comments at 24.) Again, as set forth in the reports of Dr. Klein and Mr.

Van Vactor, reliance on such "thinly traded spot prices," either as a benchmark index or to adjust the index back to the lease, would distort market values. Dr. Kline reported, for example, that because spot markets in crude oil tend to be thin, and because the cost of holding inventories to protect against supply disruption is high, refiners must rely on long term contracts to supply their needs. (Kline Rep. at p. 6.) Spot sales tend to occur under unique circumstances -- for example, when a buyer's normal supply is disrupted. Crude spot prices, therefore, may not be reflective of overall market prices at any particular time. (*Id.*)

The Controller similarly admits that spot prices for California crudes are "thinly traded," but attempts to distinguish those prices from the "refinery market" for ANS crude oil. (Controller Comments at 9.) However, the Controller provides no evidence that significant volumes of spot transactions exist in this so-called "refinery market" for ANS, as distinguished from long-term ANS supply contracts. Mr. Van Vactor reported that, generally, only two or three cargoes of ANS crude per week are sold on the spot market. (Van Vactor Rep. submitted with Texaco's earlier comments at p. 11.) As demonstrated in Texaco's earlier comments, even if proper adjustments were made, ANS spot prices over the long run would be as unreliable as any other spot prices in California as a benchmark for crude prices in the producing field.

If nothing else, the Controller's comments add to the overwhelming record evidence that MMS' proposed valuation formulas do not yield market value at the lease. The Controller proposes an alternative formula to adjust ANS spot prices back to the lease. This alternative formula, which substitutes a "regression analysis" using "average variable cost of transportation" to adjust ANS spot prices back to the lease for onshore production (but not offshore production) makes no sense. The undefined "regression analysis" would use "historical posted prices throughout the State" to create a location differential for onshore production. Because crude oil markets are dynamic, with prices changing rapidly due to a host of factors, any reliance on historical prices is unreasonable, artificial and unnecessary. Again, as noted, any reliance on ANS prices as an index is inaccurate because, as the Controller admits, ANS crude is different from California crudes not just because of location and quality differences but because of such economic differences as availability to refiners. In addition, as set forth in the Supplemental report of Mr. Van Vactor, the limited quality adjustments proposed by the Controller, for gravity and sulfur only, are not appropriate for adjusting prices of substantially different crude oil types such as ANS and most California crude oils. Instead, the gravity and sulfur adjustments cited by the Controller are only appropriate

for similar type crudes, usually produced from the same field or area. (Supp. Van Vactor Report. at 1-2.)[1]

Finally, the City Attorney and Controller argue that location adjustments should be limited to the actual cost of transportation from the lease to the "nearest market center."[2] They argue that "[p]roducers would be indifferent if they were permitted to deduct the full cost of transportation to one destination even if that cost were higher than the transportation cost to the other destination." (City Attorney Comments at p. 23; Controller Comments at p. 34.) This reasoning is unfounded. Producers would not be "indifferent" to transportation costs to a more distant market center because the royalty burden would apply only to a fraction (usually 12 1/2%) of the crude oil being moved. The transportation costs for a majority of the oil (usually 87 1/2%) would not be "deduct[ed]" under the MMS proposed formula. In fact, producers have every incentive to move crude to whatever market center makes the most economic sense. Yet, the City Attorney and Controller propose a formula in which *all* crude oil is presumed to flow to the "nearest market center." Of course, if this were to occur in the real world, any particular market center might become glutted with oil, causing prices to plummet.

In conclusion, we again urge MMS to consider and act upon Texaco's earlier comments, which have apparently not been considered in the Supplementary Proposed Rule. We note also that the comments of the City Attorney of Long Beach, California, and State Controller's Office, which appear to be the most substantive of any comments supporting the original proposed rule, contain numerous admissions of fact demonstrating that the proposed rule should be rejected. Again, we would be most

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[1] The Controller repeatedly refers to evidence in Appendix 4 of the Interagency Task Force Report as supporting its position that ANS crude prices may be used for comparative purposes in assessing California crude prices. This "evidence" is not available on the public record. The documents at issue do not appear to be Texaco documents. The Controller does not state what formulas or adjustments were used for this comparative analysis. However, Texaco suspects that the comparative analysis bears no resemblance to the formulas proposed by the Controller or by MMS.

[2] As Texaco demonstrated in its earlier comments, adjustments based on MMS' "actual cost" formula are unfair because they ignore a host of other costs, as well as economic and environmental risks, involved in moving oil to a market center.

pleased to assist MMS in any further effort to clarify or improve methods to ascertain values of crude oil at the lease.

Sincerely,

James C. Pruitt

Attachment

IV. Assertions Made by the City of Long Beach and State of California Controller's Office Cannot Be Demonstrated

The City Attorney for the City of Long Beach stated in his comments that: "[F]rom the early 1980's through the present, the market price of ANS on the West Coast has been significantly higher than posted prices of similar California crudes (adjusted for location) such as Ventura, Signal Hill and Buena Vista [see Graph B, attached]." However, the City Attorney provides an illustration only for Signal Hill (Long Beach) crude oil, and fails to make any adjustment for the quality or location factors discussed above. In contrast, Table 3 (attached) compares annual average ANS spot prices to posted prices of Buena Vista plus the pipeline tariff to move it to Hynes Station in central Los Angeles. (Line 63 is a common carrier and rates are set by the California PUC.) Buena Vista prices are further adjusted by adding the annual average ANS/Line 63 quality differential calculated in Table 2. This price series is then compared to ANS West Coast spot prices. On average through the period ANS received a 10¢ per barrel premium, but there was substantial variation. This is a very small average difference, easily explained by handling costs and likely risk aversion by producers, who frequently prefer term contracts. These results are further illustrated in Figure 1 (which can be contrasted to Graph B of the City of Long Beach's comments).

V. Kern River Spot Prices

As we have seen when market-based location and quality adjustments are made, similar crude oils in the same market sell for similar prices. Most California crude oil is, however, heavy and quite different from ANS. On shore it must be transported by tanker truck, heated pipeline, train, blending or some combination. Transportation is costly and complex. This makes reliable or stable comparison between heavy crude-oil field prices and delivered ANS prices difficult if not impossible to calculate. Since most federal royalty oil is heavy and remote from refinery centers such valuations are bound to be vexing for all parties.

In this regard, the comments by the California State Controller's Office are quite illuminating. Their analysis "..revealed that from January 1985 to August 1996, the average monthly difference between Kern River spot prices, based on information from both Platts and Telerate, and the comparable posted price was 4 cents." The California State Controller's Office rejected the use of either posted prices or spot prices for valuing California crude oils. They rejected this price

volumes much smaller than ANS, resulting in higher transaction costs to refiners. California crude oils also have unique refining qualities; in particular they contain a number of heavy metals and other impurities which cause corrosion and other refinery difficulties. As both the Long Beach City Attorney and the State of California Controller's Office acknowledge, the steady availability of ANS makes it particularly valuable to refiners. Refiners need to make costly adjustments if they have to switch unexpectedly from one crude oil type to another.

For these and other economic reasons, ANS has consistently sold for higher prices than California crude oils of similar or identical gravity. This observation holds whether comparing either spot or term prices.[1]

Crude oil from Line 63, which is a blend of California crude oils from the San Joaquin Valley, is often sold on the spot market in Los Angeles. These oils have an average gravity of about 28° and the point of sale is within a few miles of the Los Angeles Basin's largest refineries and the ports where ANS is off loaded. There are a variety of crude-oil pipelines to move either crude oil and many of them are common carriers.

Dow Jones (Telerate), Reuters, and Platt's all report daily spot prices for Line 63 (although the number of spot sales in recent years has declined). Price data have been available since November 1984. Even when Line 63's average API gravity was higher than ANS (through 1990), its spot prices were almost always lower. Table 2 provides annual average spot prices and gravities for Line 63 and ANS crude oil during this period. The average gravity adjusted spot price of ANS has exceeded Line 63 by $0.61.

The City of Long Beach and the State of California recommend that the MMS determine the royalty obligation for California crude oils using ANS spot prices as an index, without making any adjustment for the obvious quality or other economic differences. (Indeed, they seem unaware of the increase in the API gravity of ANS and this leads to a further set of false conclusions.) Such a methodology is bound to overstate the netback value of California crude oils in the field and would be an unreasonable burden on lease holders.

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[1]The California State Controller's Office argues that spot price assessments for California crude oils are as unreliable as postings. Why ANS spot prices, collected by the same news organizations, are reliable is not adequately explained by the authors.

Gravity and sulfur banks are often used on pipelines to calculate quality differences for shippers that deliver and receive slightly different crude oil streams. If crude oils from adjacent fields are commingled there will likely be some variation in quality. Generally, shippers can expect random variations to even out over time. Most commingled crude oil lines, such as Line 63 in California, serve a predictable set of crude oil fields and the qualities of the oils on the line are well known. (Commingled crude oil from Line 63 has, in fact, often been assayed so its properties are well understood by the industry.)

Gravity price differentials, such as those published with California crude oil postings or used in gravity banks on specific pipelines, are reasonably reliable estimates of value differences between two lots of crude oil within a field or on a commingled pipeline for which they are published. However, they should never be used to estimate value differences between wholly separate crude oils, particularly when they are from different petroleum provinces. This is a fundamental error in the analysis and comments provided by the City of Long Beach and State of California Controller's Office.

III. ANS Crude Oil Is Of Higher Quality Than California Crude Oil Of Similar API Gravity

Through most of the 1980s the API gravity of Alaska North Slope (ANS) crude oil was around 27°, with a sulfur content of slightly over 1%. On a world scale, ANS is considered a medium quality sour crude oil. In many respects it has refinery qualities similar to Persian Gulf sour crude oils. ANS is favored by many refiners because it produces high quality motor diesel and heating oil. In addition, ANS is a high-volume crude oil readily available to U.S. refiners at tidewater, which frequently reduces handling and storage expenses.

In the last decade the API gravity of ANS has increased. The production of medium gravity Prudhoe Bay and Kuparuk crude oil has declined. New fields of lighter oils, such as Point McIntyre, have come on stream. Two natural gas liquids processing plants on the North Slope have been constructed and their output blended with that from other crude oil fields. The average gravity of ANS is now about 30° and obviously commands a higher price for this reason.

California crude oils are delivered by pipeline, usually as part of commingled stream. Refinery properties are less predictable and delivered

I. Introduction

This report is submitted in response the Mineral Management Service's (MMS's) supplementary proposed rule for the valuation of royalty crude oil and to comments on the proposed rules made by the City of Long Beach and the California State Controller. These comments are directed toward the use of ANS prices as an index with which to value California crude oils and the quality and location adjustments necessary to make such comparisons meaningful.

II. Comparing Different Crude Oils

Relative crude oil prices are determined by differences in location and quality, but the precise pattern cannot be captured by a simple formula. There are many reasons for this. Petroleum product prices are constantly in flux and refineries must adjust feedstocks and output accordingly. Further, transport options and costs vary; crude oil fields are depleted, pipelines rerouted, storage tanks modified; competing refineries are closed and opened; technologies change, etc. As product prices and transportation options change refiners respond to the new sets of incentives and market circumstances in varying ways.

Although a full accounting of all the market forces that impact relative crude oil prices can not be specified, the petroleum industry has devised a series of measurements, standards and conventions for describing crude oils. One important standard of measurement is API gravity. API gravity measures the density of the crude oil. As a general rule, the denser (heavier) the crude oil the lower its value. This is because the less dense (lighter) ends of crude oil derived from simple distillation — naphtha, kerosene and middle distillates — are the most valuable. Also, sulfur tends to bind to heavier molecules, which means that heavy crude oils and products tend to have higher concentrations of sulfur and the resulting environmental penalties lower their value, or they cost more to refine into clean products.

Often two crude oil fields may have identical API gravities, but are different in many of their quality characteristics. Table 1 demonstrates such differences. The chemical properties of a pool within a crude oil field do not usually change over time. Thus, if a refiner knows the field from which the crude oil was produced and its API gravity, details on its quality can be inferred from previous assays. But, the refiner has to know the source of the crude oil in order to use API gravity to accurately predict its quality.

Comments On Mineral Management Service's Supplementary Proposed Rule Establishing Oil Value for Royalty Due on Federal Leases

By Samuel A. Van Vactor

A Report Prepared for Texaco Inc.

July 31, 1997

Table 3 - Comparison of ANS West Coast Spot Prices and Buena Vista Posted Prices, Adjusted to ANS (West Coast) Basis

Year	Avg. °API Gravity of ANS	Buena Vista Posted Price at ANS Gravity	FCPL Transp. Cost to Hynes	ANS/L63 Quality Differential (Table 2)	Adjusted Buena Vista Posted Price	ANS West Coast Spot Price	Difference: ANS - Adjusted Buena Vista
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1984*	26.5	$24.15	$0.585	$0.81	$25.55	$26.88	$1.34
1985	26.6	$23.38	$0.585	$0.85	$24.81	$25.08	$0.27
1986	26.5	$12.72	$0.585	$0.50	$13.80	$12.88	($0.92)
1987	27.5	$15.38	$0.585	$0.51	$16.48	$16.96	$0.48
1988	27.7	$12.60	$0.585	$0.27	$13.46	$13.52	$0.06
1989	27.5	$15.91	$0.608	$0.32	$16.84	$17.10	$0.25
1990	27.7	$19.73	$0.660	$0.59	$20.97	$21.42	$0.45
1991	28.2	$16.02	$0.709	$0.65	$17.38	$17.23	($0.15)
1992	28.6	$15.31	$0.761	$1.44	$17.51	$17.46	($0.05)
1993	28.9	$14.01	$0.761	$0.76	$15.53	$15.47	($0.06)
1994	29.6	$13.64	$0.761	$0.34	$14.74	$15.19	$0.46
1995	30.0	$15.23	$0.802	$0.68	$16.71	$16.95	$0.24
1996	30.2	$19.20	$0.822	$0.40	$20.43	$20.41	($0.02)
						Average Difference:	**$0.10**

All prices are in $/Bbl.

Col. (4) is the FCPL tariff from Fellow Station to Hynes Station on Line 63 plus Westside gathering charges to Fellows Station.

Col. (6) =(3) + (4) + (5)

* ANS Spot prices only reported during last two months of 1984. This is taken into account in the calculation of the average difference.

Sources: Dow Jones Markets (Telerate), Reuters, Chevron Crude Oil Price Bulletin, Four Corners Pipeline Co., Texaco.

Economic Insight, Inc.

31-Jul-97

Table 2
Comparison of ANS West Coast and Line 63 Spot Prices

Year	Line 63 °API Gravity	Line 63 Spot Price	ANS °API Gravity	ANS WC Spot Price	Line 63 Price Adj. to ANS API*	Difference ANS - Adj. Line 63
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1984**	28.0	$26.37	26.5	$26.88	$26.07	$0.81
1985	28.0	$24.49	26.6	$25.08	$24.23	$0.85
1986	28.0	$12.62	26.5	$12.88	$12.39	$0.50
1987	28.0	$16.53	27.5	$16.96	$16.45	$0.51
1988	28.0	$13.31	27.7	$13.52	$13.25	$0.27
1989	28.0	$16.88	27.5	$17.10	$16.77	$0.32
1990	28.0	$20.90	27.7	$21.42	$20.83	$0.59
1991	28.0	$16.53	28.2	$17.23	$16.58	$0.65
1992	28.0	$15.92	28.6	$17.46	$16.02	$1.44
1993	28.0	$14.58	28.9	$15.47	$14.71	$0.76
1994	28.0	$14.62	29.6	$15.19	$14.85	$0.34
1995	28.0	$16.04	30.0	$16.95	$16.28	$0.68
1996	28.0	$19.60	30.2	$20.41	$20.01	$0.40
				Average Difference:		**$0.61**

* Adjusment is done using Chevron's posted price gravity adjustment.

** Prices only reported during last two months of 1984. This is taken into account in the calculation of the average difference.

Sources: Dow Jones Markets (Telerate), Reuters, Chevron Crude Oil Price Bulletin, Texaco.

Table 1 - Assay Comparison of Two California Crude Oils of Similar Gravity

	Signal Hill	Buena Vista
Gravity (° API)	27.1°	27.5°
Sulfur (% of Weight)	1.2%	0.6%
Yield (% of Volume)		
Light Gasoline	8.5%	4.7%
Total Gasoline and Naphtha	24.1%	28.0%
Kerosene Distillate	4.1%	5.5%
Gasoil	17.5%	23.3%
Nonviscous Lubricating Distillate	7.1%	6.6%
Medium Lubricating Distillate	5.2%	4.8%
Viscous Lubricating Distillate	5.1%	8.4%
Residuum	36.9%	25.9%

Source: U.S. Department of Energy

About the Author

Samuel A. Van Vactor is president of Economic Insight, Inc., of Portland, Oregon which publishes the *Energy Market Report* and provides economic consulting services. He was formerly an economist with the International Energy Agency of the OECD and an international economist with the U.S. Treasury. A PhD candidate at Cambridge University he holds a masters degree from the University of Washington. He was a founding member of the International Association for Energy Economics and served on its board of directors. He is the author or coauthor of numerous books and articles, including *Competition in the Oil Industry* and "Retrospective on oil prices."

information despite the fact that either are precise measures of fair market value of comparable crude oils at the lease;[2] despite the fact that such prices can be verified by audit; and despite the fact that spot prices are gathered by the same third parties who they would rely on for discovering ANS prices.

VI. Conclusion

The comments filed by the City of Long Beach and the California State Controller's Office are revealing and misleading at the same time. They rejected direct measures of market value and instead proposed a formula based on an ANS index price. They recommended that the formula not be grounded on market-based location and quality differences. Instead, they argue that it should be determined by a regulatory process.

Contrary to the claim made by the City of Long Beach and State of California, when market data are analyzed and correctly interpreted, they reveal that California crude-oil royalties have not been undervalued. Reasons why the City of Long Beach and the California State Controller's Office reach a contrary conclusion include the following:

1. They failed to recognize that, because ANS is superior in quality and availability to California crude oils of comparable API gravity, ANS commands a price premium in the market place.

2. They failed to make adequate market-based location adjustments. ANS is a delivered price and cannot be directly compared to California crude oil field prices.

3. They failed to acknowledge that ANS has been increasing in gravity; instead they did a price comparison on the basis of 27°, when the crude oil is now 3° lighter.

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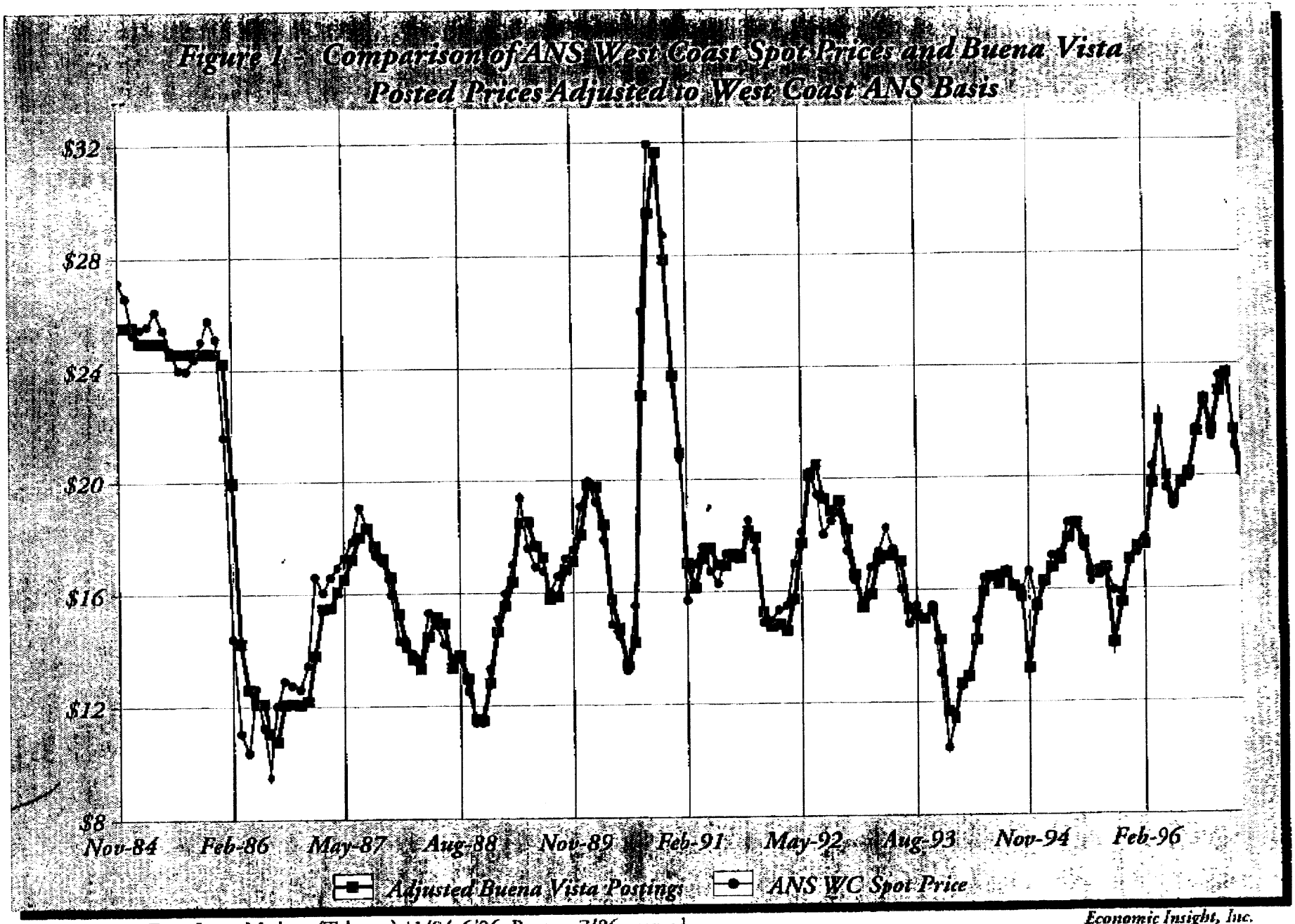
[2]Spot and term prices, even if they have similar averages, may be quite different at any particular point in time. This reflects the fact that they often represent separate markets.



Sources: Dow Jones Markets (Telerate) 11/84-6/86, Reuters 7/86 onward.